

CLAIMS

What is claimed is:

- 5 1. A variable field of view optical system comprising:
- a forward curved optical element;
- a rearward optical element comprising an axially gradient index material;
- a curved focal surface; and
- means for conveying an image on said curved focal surface to a flat detector
- 10 surface.
2. The system of claim 1 wherein said forward curved optical element comprises a ball
- lens.
- 15 3. The system of claim 1 wherein said conveying means comprises a backward curving or
- hollow field relay lens.
4. The system of claim 1 wherein said conveying means comprises a plurality of optical
- fibers.
- 20 5. The system of claim 4 wherein said fibers are concentrated more densely in a center of
- said focal surface than in a periphery of said focal surface.
6. The system of claim 4 wherein said fibers are mounted normal to said curved focal
- 25 surface.
7. The system of claim 1 wherein said rearward optical element comprises a dynamic index
- material.

8. The system of claim 7 wherein said dynamic index material comprises an electroactive hydrogel.

5 9. The system of claim 1 wherein said system provides simultaneous wide field of view with a lower resolution and narrow field of view with higher resolution.

10. The system of claim 9 wherein said system comprises substantially no moving parts.

10 11. A variable field of view optical method comprising the steps of:
providing a forward curved optical element;
providing a rearward optical element comprising an axially gradient index
material;
providing a curved focal surface; and
15 conveying an image on the curved focal surface to a flat detector surface.

12. The method of claim 11 wherein the forward curved optical element comprises a ball lens.

20 13. The method of claim 11 wherein conveying comprises employing a backward curving or hollow field relay lens.

14. The method of claim 11 wherein conveying comprises employing a plurality of optical fibers.

25 15. The method of claim 14 wherein the fibers are concentrated more densely in a center of the focal surface than in a periphery of the focal surface.

16. The method of claim 14 wherein the fibers are mounted normal to the curved focal surface.

17. The method of claim 11 wherein the rearward optical element comprises a dynamic
5 index material.

18. The method of claim 17 wherein the dynamic index material comprises an electroactive hydrogel.

10 19. The method of claim 11 wherein the method provides simultaneous wide field of view with a lower resolution and narrow field of view with higher resolution.

20. The method of claim 19 wherein the method employs substantially no moving parts.